

CAMP LUTHERHAVEN (PWSNO 1280029) SOURCE WATER ASSESSMENT REPORT

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State of Idaho Department of Environmental Quality

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SOURCE WATER ASSESSMENT FOR CAMP LUTHERHAVEN

Under the Federal Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. The Department of Environmental Quality is completing the assessments for all Idaho public drinking water systems. The assessment for your drinking water source is based on well construction characteristics; site specific sensitivity factors associated with the aquifer the water is drawn from; a land use inventory inside the well recharge zone; and water quality history. For non-community transient water systems like Camp Lutherhaven, recharge zones were generally delineated as a 1000-foot fixed radius around the wells.

This report, *Source Water Assessment for Camp Lutherhaven* describes factors used to assess the well's susceptibility to contamination. The analysis relies on information from the well log; an inventory of land use, well site characteristics, potential contaminant sites identified through a Geographic Information System database search; and information from the public water system file. The ground water susceptibility analysis worksheet for the Camp Lutherhaven well is attached.

Taken into account with local knowledge and concerns, this assessment should be used as a planning tool to develop and implement appropriate protection measures for this system. **The results should not be used as an absolute measure of risk and are not intended to undermine the confidence in your water system.**

Well Construction. Camp Lutherhaven is a year round camp and retreat facility located on Mica Bay about 5 miles south of Coeur d'Alene, Idaho. Drinking water for the camp is supplied by a 10 inch cased well that was drilled in 1971 to a reported depth of 185 feet. The well casing extends 18 inches above ground and is fitted with a vented watertight well cap. The well log for the Camp Lutherhaven well is not on file with DEQ and was not found in a search of Idaho Department of Water Resources records. Consequently, several risk factors related to well construction and soils types at the well site are unknown. No deficiencies in wellhead and surface seal maintenance were noted during a sanitary survey in 1997.

Well Site Characteristics. Hydrologic sensitivity scores are derived from information on the well log and from the soil drainage classification inside the recharge zone delineation. Soils in the well recharge zone for Camp Lutherhaven well are generally poorly drained to moderately well drained. Soils in these drainage classes provide some protection against migration of contaminants toward the well. The composition of the soil above the water table at the well site is not known.

Potential Contaminant Inventory. Land inside the protection zone delineated for Camp Lutherhaven is mostly wooded. The waters of Lake Coeur d'Alene cover about 20 per cent of the delineated area. Roads crossing the delineation boundaries carry low volume local traffic.

A septic tank serving the lodge is about 55 feet from the well. Idaho Rules for Public Drinking Water Systems specify a minimum separation distance of 100 feet between individual septic tanks and public drinking water wells. In addition to microbial contaminants, septic tanks are potential sources of nitrate contamination. A 400-gallon fuel storage tank is about 200 feet from the well.

Water Quality History. Camp Lutherhaven chlorinates its water prior to distribution and tests monthly for total coliform bacteria. Total coliform bacteria were present in distribution samples during November and December 1994 and January 1995. The contamination was attributed to replacement of the pump. The system also installed a new chlorinator later in 1995. An untreated water sample drawn in November 2000 also tested positive for total coliform bacteria. Annual nitrate tests show concentrations ranging from 1.18 to 2.88 mg/l. The Maximum Contaminant Level (MCL) for nitrate is 10.0 mg/l.

Susceptibility to Contamination. An analysis of Camp Lutherhaven well, incorporating information from the public water system file and the potential contaminant inventory ranked the well highly susceptible to microbial and inorganic chemical contamination because of the presence of a septic tank inside the 100-foot sanitary setback zone. Susceptibility to contamination with synthetic organic chemicals (SOC) and volatile organic chemicals (VOC) is moderate. Unknown risks related to local geology added the most points to the final SOC and VOC susceptibility scores. The complete analysis worksheet for your well is on page 6 of this report. Formulas used to compute final scores and susceptibility rankings are at the bottom of the worksheet.

Source Water Protection. This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

The location of the lodge septic tank inside the sanitary setback zone Lutherhaven disinfects its water before it enters the reservoir, which helps reduce the public health risks associated with having the tank too close to the well. The camp also tests the water monthly for bacterial contamination. Frequent testing like this provides an indication of developing trouble like a malfunctioning chlorinator or a break in the distribution system. Until either the tank or well is relocated, the camp needs to be especially vigilant about maintaining and operating the septic tank properly.

Every public water system should develop an emergency response plan. There is a simple form available on the DEQ website (www.deq.state.id.us/water/water1.htm) to guide systems through the emergency planning process.

The camp should also investigate ground water protection programs like Home*A*Syst. These programs are designed to help well owners assess everyday activities for their potential impact on drinking water quality. Topics include septic tank management, petroleum product storage, handling and storing lawn and household chemicals and similar activities. Because Camp Lutherhaven does not have direct jurisdiction over the entire recharge zone for its well, it will be important to work with neighboring landowners to promote ground water stewardship. Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term.

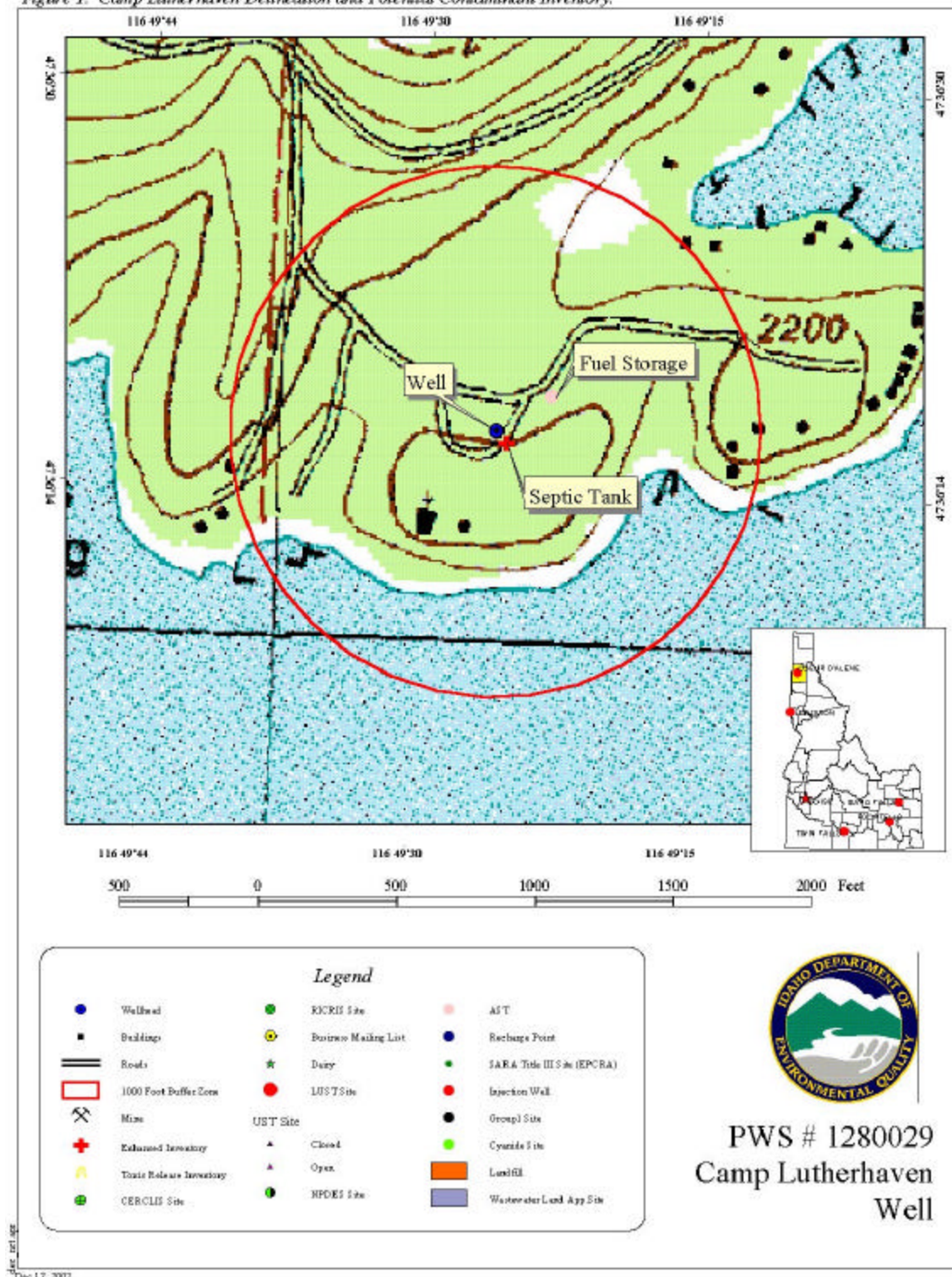
Assistance. Public water suppliers and users may call the following IDEQ offices with questions about this assessment and to request help with drinking water protection planning.

Coeur d'Alene Regional DEQ Office (208) 769-1422

State IDEQ Office (208) 373-0502

DEQ website: www.deq.state.id.us/water/water1.htm

Figure 1. Camp Lutherhaven Delineation and Potential Contaminant Inventory.



Ground Water Susceptibility

Public Water System Name :

CAMP LUTHERHAVEN LUTHERAN

Source

WELL #1

Public Water System Number :

1280029

10/31/02 10:19:34 AM

1. System Construction		SCORE			
Drill Date	1971				
Driller Log Available	NO				
Sanitary Survey (if yes, indicate date of last survey)	YES 1997				
Well meets IDWR construction standards	UNKNOWN	1			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	UNKNOWN	2			
Highest production 100 feet below static water level	UNKNOWN	1			
Well located outside the 100 year flood plain	YES	0			
Total System Construction Score		4			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	YES	0			
Vadose zone composed of gravel, fractured rock or unknown	UNKNOWN	1			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	UNKNOWN	2			
Total Hydrologic Score		4			
3. Potential Contaminant / Land Use - ZONE 1A		IOC	VOC	SOC	Microbial
		Score	Score	Score	Score
Land Use Zone 1A	WOODLAND	0	0	0	0
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	SEPTIC TANK	YES	NO	NO	YES
Total Potential Contaminant Source/Land Use Score - Zone 1A		0	0	0	0
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES. Fuel storage, surface water	0	1	1	1
(Score = # Sources X 2) 8 Points Maximum		0	2	2	2
Sources of Class II or III leacheable contaminants or Microbials	YES	0	1	1	
4 Points Maximum		0	1	1	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - Zone 1B		0	3	3	2
Cumulative Potential Contaminant / Land Use Score		0	3	3	2
4. Final Susceptibility Source Score		8	9	9	9
5. Final Well Ranking		*High	Moderate	Moderate	*High

*High due to the presence of a septic tank within 100 feet of the well.

The final scores for the susceptibility analysis were determined using the following formulas:

- 1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.27)
- 2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

Final Susceptibility Ranking:

- 0 - 5 Low Susceptibility
- 6 - 12 Moderate Susceptibility
- > 13 High Susceptibility

POTENTIAL CONTAMINANT INVENTORY

LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as Superfund is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.